



2016 Vermont Business Sector Market Characterization and Assessment Study

APPENDIX D

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Introduction

The 2016 Vermont Business Sector Market Characterization and Assessment study provides baseline energy efficiency data for Vermont’s business sector facilities as of 2016, largely through primary data collection. The main body of this final report provides summary figures and tables that summarize New Construction results by four building-use types. To facilitate comparisons with the 2011 report, this Appendix D provides figures and tables that summarize results using the same nine facility types used in 2011.

New Construction Figures and Tables with Nine Facility Types

Figure 1. Facility Ownership (N=48) [2011 Fig. 3-3]

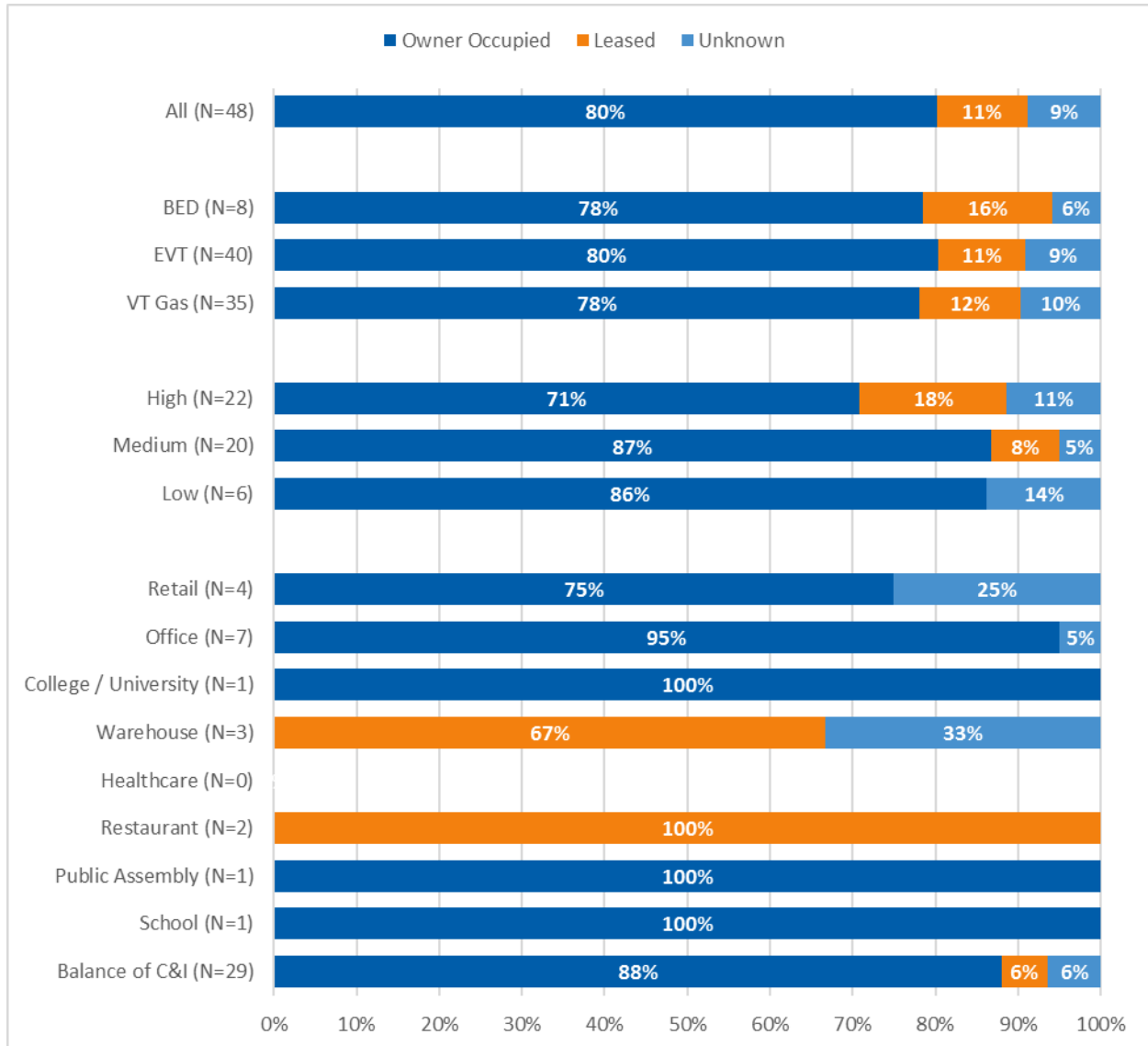




Table 1. Full-Time Equivalent Employees (N=32) [2011 Table 3-2]

Category	Mean FTEs	Median FTEs
All Buildings (N=32)	19	5
EEU		
BED (N=5)	3	5
EVT (N=27)	20	6
VT Gas (N=23)	24	5
Facility Size		
High (N=14)	42	8
Medium (N=14)	3	5
Low (N=4)	1	2
Facility Type		
Retail (N=3)	16	27
Office (N=4)	24	5
College / University (N=0)	0	Unknown
Warehouse (N=1)	3	10
Healthcare (N=0)	#DIV/0!	Unknown
Restaurant (N=2)	7	8
Public Assembly (N=1)	2	2
School (N=1)	6	6
Balance of C&I (N=20)	22	5

Figure 2. Mean Open Hours per Week by Facility Type (N=48) [2011 Fig. 3-5]

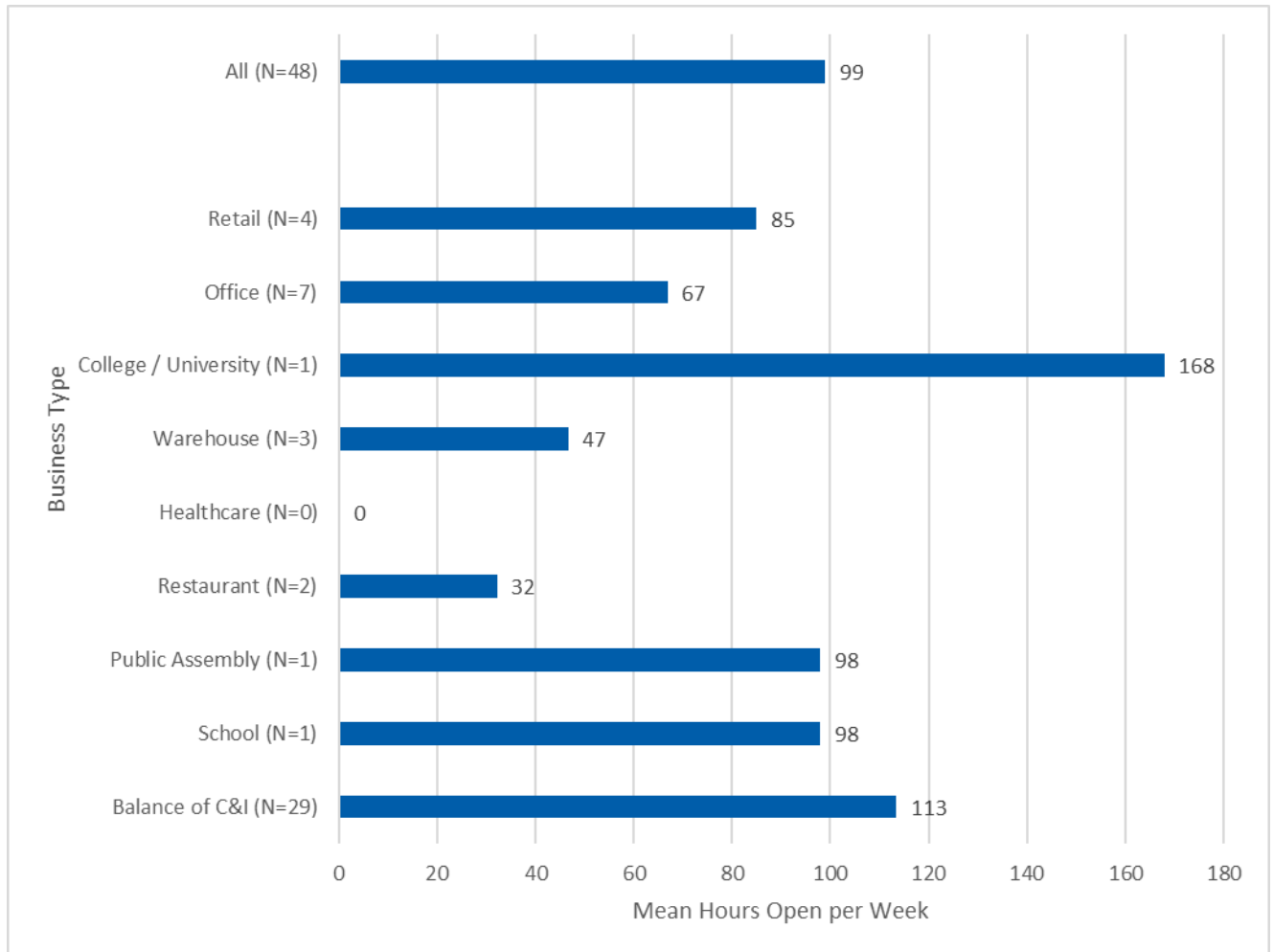




Figure 3. Wall Insulation R-Values by Facility Type (N=45) [2011 Fig. 3-9]

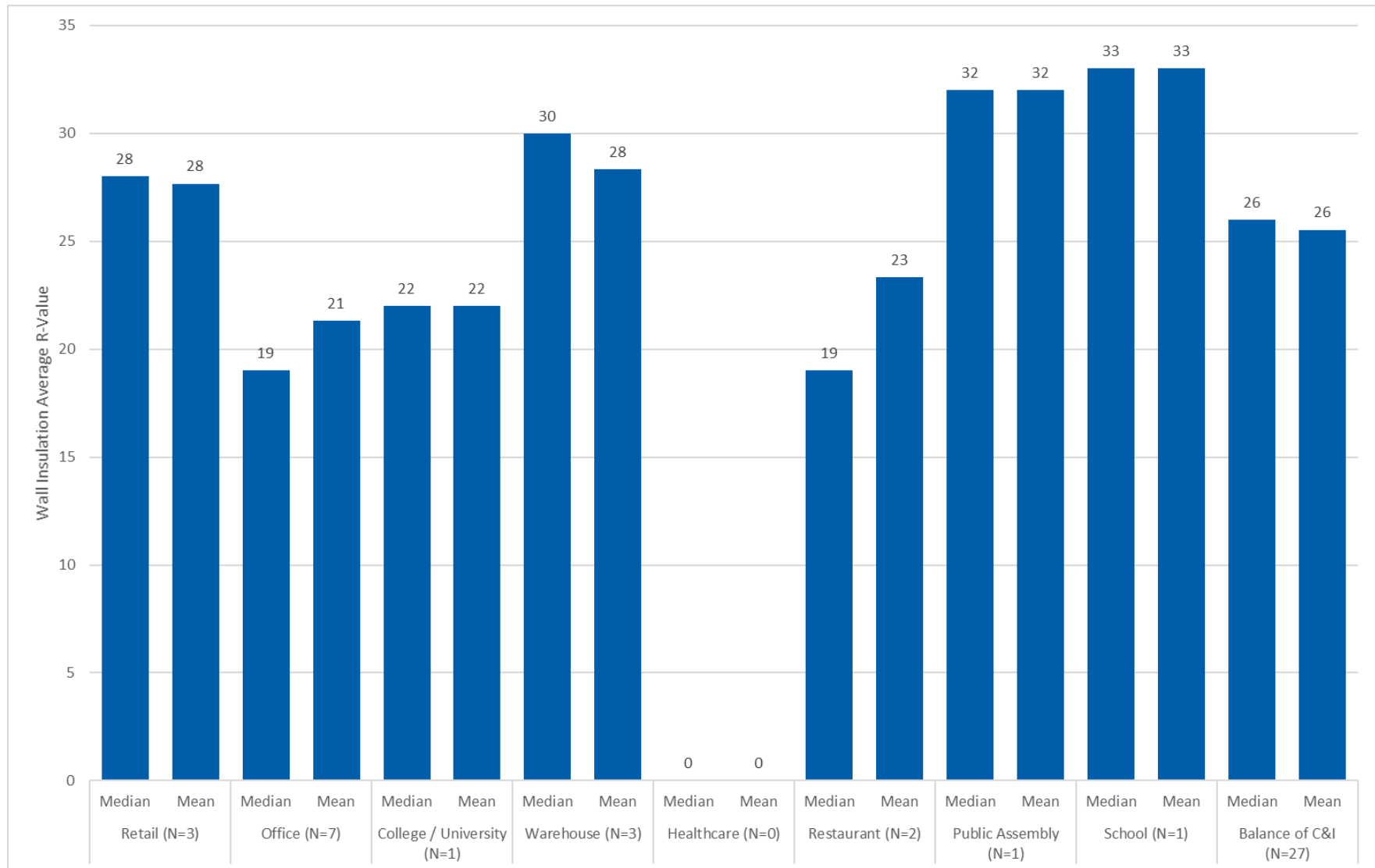


Figure 4. Roof Insulation R-Values by Facility Type (N=40) [2011 Fig. 3-12]

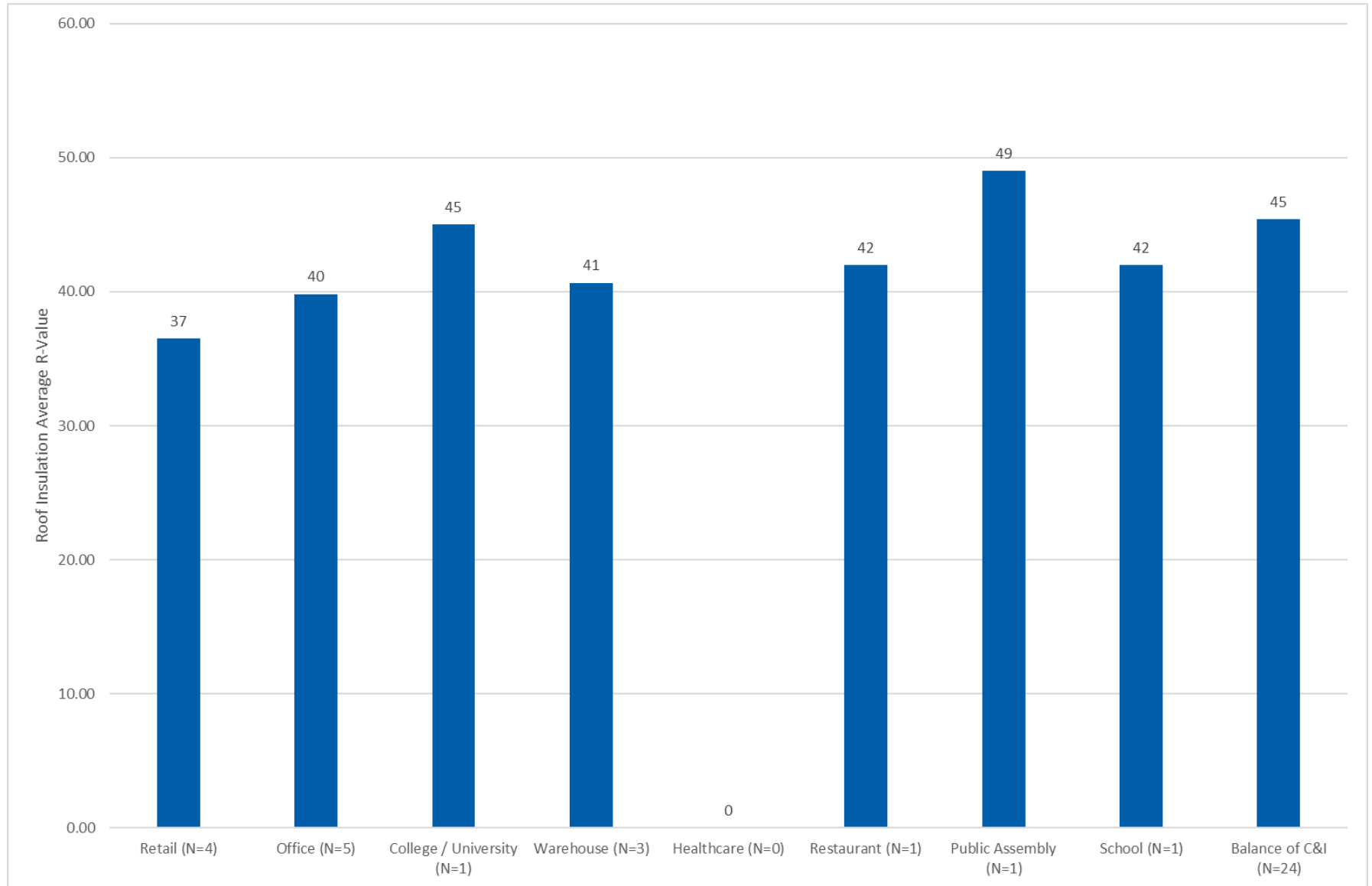




Figure 5. Distribution of Indoor Lamp Types by Facility Type (N=48)* [2011 Table 3-5]

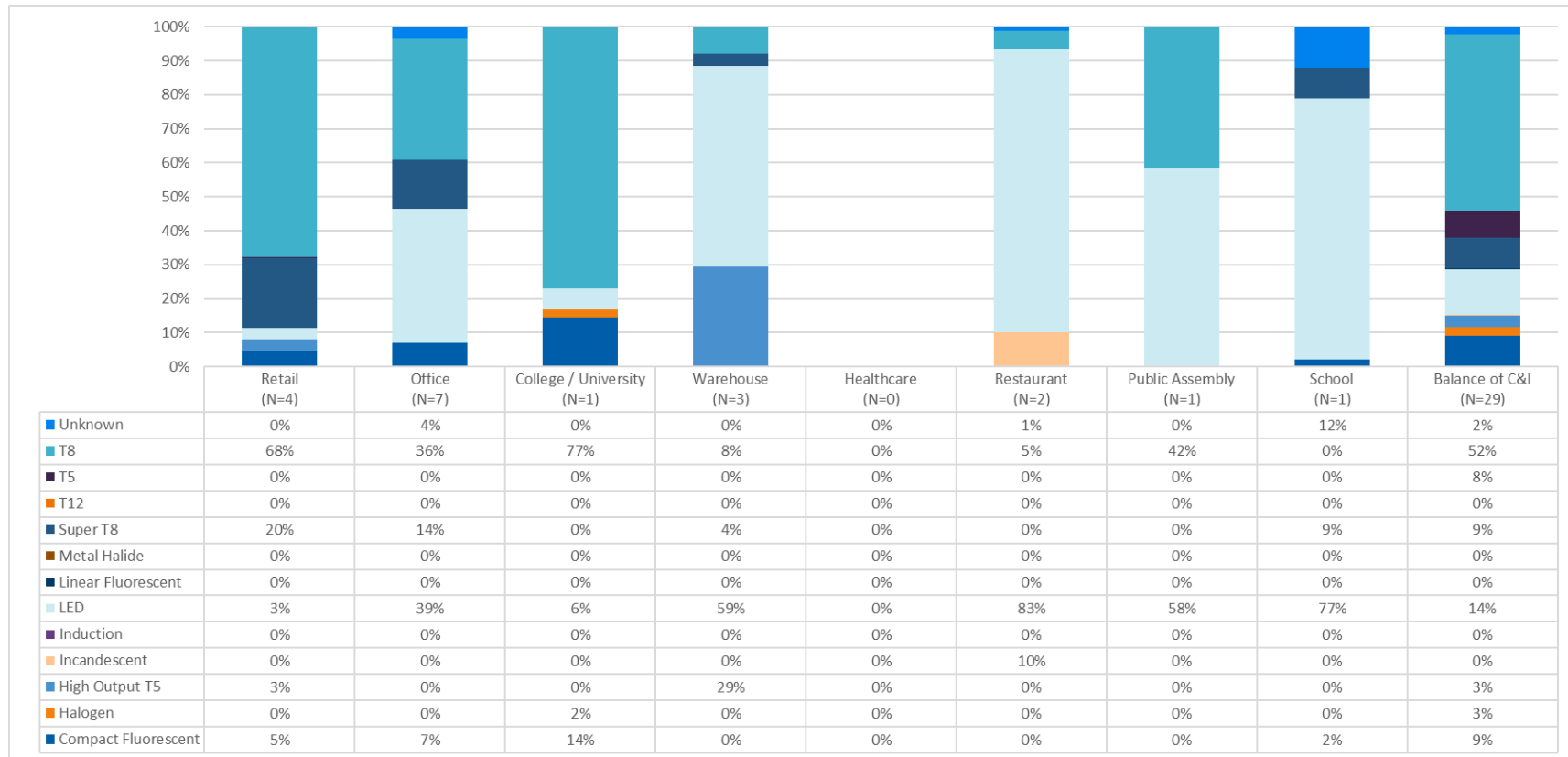


Table 2. Penetration of Indoor Lighting Control Types (N=48) [2011 Table 3-7]

Category	Manual Switch	Motion / Occupancy Sensor	Timeclock / EMS	Dimmer	Daylighting Controls
All (N=48)	80%	84%	18%	7%	14%
EEU					
BED (N=8)	98%	68%	2%	28%	0%
EVT (N=40)	79%	85%	18%	7%	15%
VT Gas (N=35)	73%	79%	12%	6%	9%
Facility Size					
High (N=22)	78%	88%	22%	5%	15%
Medium (N=20)	85%	75%	0%	18%	14%
Low (N=6)	82%	49%	2%	0%	0%
Facility Type					
Retail (N=4)	100%	77%	52%	0%	0%
Office (N=7)	99%	99%	42%	0%	0%
College / University (N=1)	100%	100%	0%	0%	0%
Warehouse (N=3)	20%	100%	0%	0%	0%
Healthcare (N=0)	0%	0%	0%	0%	0%
Restaurant (N=2)	100%	56%	0%	44%	0%
Public Assembly (N=1)	100%	100%	0%	0%	100%
School (N=1)	100%	100%	0%	100%	0%
Balance of C&I (N=29)	91%	73%	0%	13%	21%



Table 3. Saturation of Indoor Lighting Control Types for Linear Fluorescents Only* [2011 Table 3-8]

Category	Manual Switch	Motion / Occupancy Sensor	Always On (24/7)	Timeclock / EMS	Dimmer	Daylighting Controls	No Space Control	Not Identified
All (N=41)	58%	25%	0%	5%	0%	1%	1%	10%
EEU								
BED (N=6)	56%	7%	0%	0%	0%	0%	37%	0%
EVT (N=35)	59%	25%	0%	5%	0%	1%	1%	10%
VT Gas (N=29)	54%	23%	0%	7%	0%	2%	1%	14%
Facility Size								
High (N=20)	52%	25%	0%	7%	0%	1%	1%	13%
Medium (N=16)	72%	27%	0%	0%	0%	1%	0%	0%
Low (N=5)	93%	1%	0%	0%	0%	0%	6%	0%
Facility Type								
Retail (N=4)	63%	5%	0%	11%	0%	0%	1%	20%
Office (N=5)	65%	34%	0%	0%	0%	0%	1%	0%
College / University (N=1)	91%	9%	0%	0%	0%	0%	0%	0%
Warehouse (N=1)	0%	94%	0%	0%	0%	0%	0%	6%
Healthcare (N=0)	0%	0%	0%	0%	0%	0%	0%	0%
Restaurant (N=1)	100%	0%	0%	0%	0%	0%	0%	0%
Public Assembly (N=1)	34%	66%	0%	0%	0%	0%	0%	0%
School (N=1)	89%	0%	0%	0%	0%	0%	11%	0%
Balance of C&I (N=27)	61%	34%	0%	0%	0%	3%	1%	0%

Table 4. Distribution of Outdoor Lamp Types by Facility Type [2011 Table 3-9]

Outdoor Lighting Type	All (N = 42)	Retail (N = 4)	Office (N = 6)	College / University (N = 0)	Warehouse (N = 3)	Healthcare (N = 0)	Restaurant (N = 2)	Public Assembly (N = 1)	School (N = 1)	Balance of C&I (N = 25)
Compact Fluorescent	16%	8%	1%	0%	0%	0%	0%	86%	0%	21%
LED	59%	73%	83%	0%	82%	0%	53%	14%	0%	52%
Linear Fluorescent	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Metal Halide	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Super T8	2%	9%	0%	0%	0%	0%	0%	0%	0%	0%
T8	2%	9%	1%	0%	0%	0%	0%	0%	0%	0%
Unknown	21%	0%	14%	0%	18%	0%	47%	0%	100%	25%



Table 53. Saturation of Outdoor Lighting Control Types [2011 Table 3-10]

Category	Manual Switch	Motion / Occupancy Sensor	Always On (24/7)	Timeclock / EMS	Dimmer	Daylighting Controls	No Space Control	Not Identified
All (N=48)	6%	6%	0%	16%	0%	50%	0%	22%
EEU								
BED (N=8)	0%	0%	0%	0%	0%	93%	0%	7%
EVT (N=40)	6%	6%	0%	17%	0%	48%	0%	22%
VT Gas (N=35)	5%	0%	0%	8%	0%	54%	0%	33%
Facility Size								
High (N=22)	0%	5%	0%	17%	0%	49%	0%	28%
Medium (N=20)	26%	10%	0%	16%	0%	46%	0%	3%
Low (N=6)	6%	0%	0%	0%	0%	89%	0%	5%
Facility Type								
Retail (N=4)	0%	8%	0%	22%	0%	32%	0%	37%
Office (N=7)	31%	0%	0%	62%	0%	0%	0%	7%
College / University (N=1)	0%	0%	0%	0%	0%	0%	0%	0%
Warehouse (N=3)	0%	0%	0%	0%	0%	100%	0%	0%
Healthcare (N=0)	0%	0%	0%	0%	0%	0%	0%	0%
Restaurant (N=2)	0%	0%	0%	0%	0%	100%	0%	0%
Public Assembly (N=1)	0%	0%	0%	0%	0%	0%	0%	0%
School (N=1)	0%	0%	0%	0%	0%	0%	0%	0%
Balance of C&I (N=29)	11%	5%	0%	8%	0%	69%	0%	8%

Figure 6. Boiler Delivery Systems by Facility Type (N=34)* [2011 Fig. 3-30]

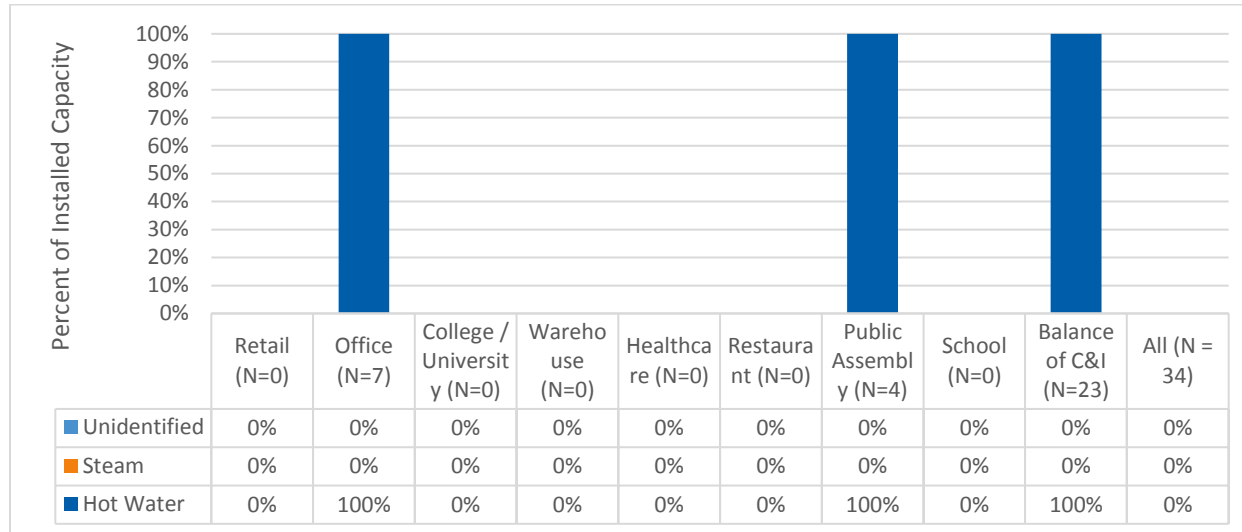




Figure 7. Saturation of Cooling System Types by Facility Type (N=263)* [2011 Fig. 3-34]

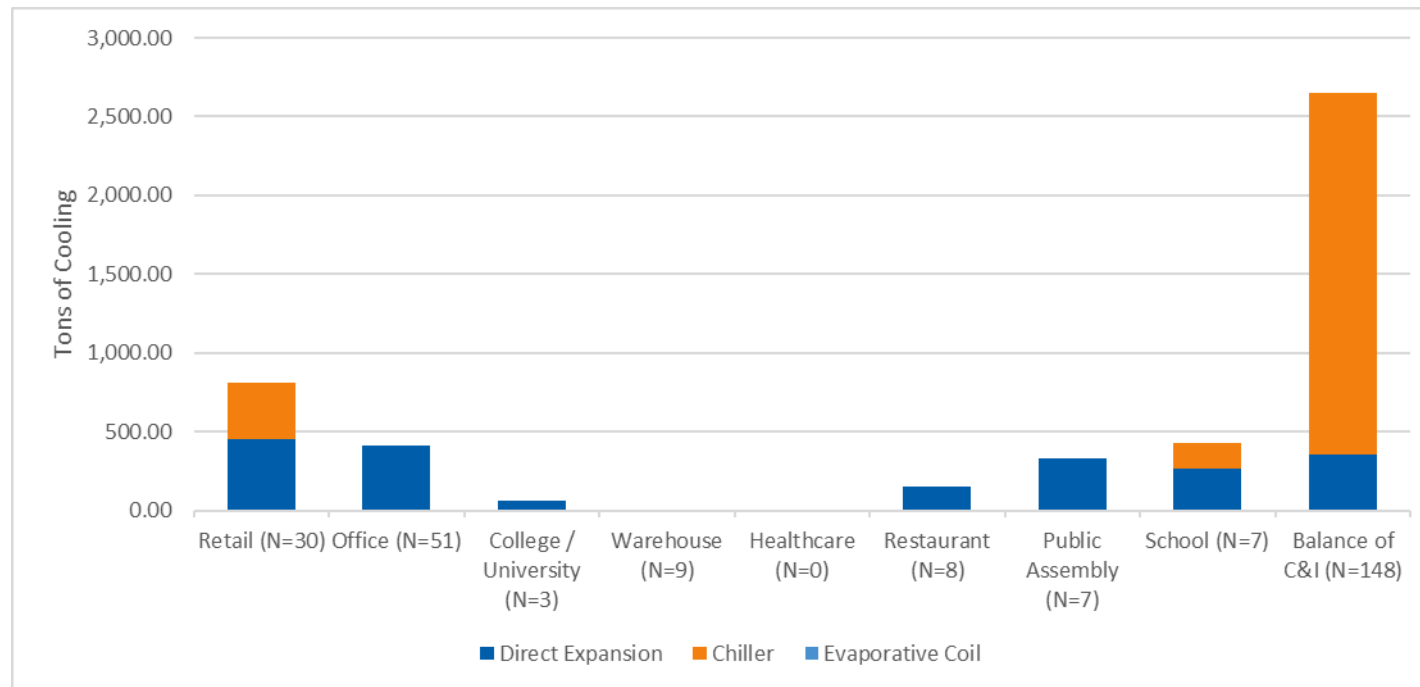


Figure 8. Saturation of Multi-Zone Distribution System Types by Facility Type (N=51) [2011 Fig. 3-35]

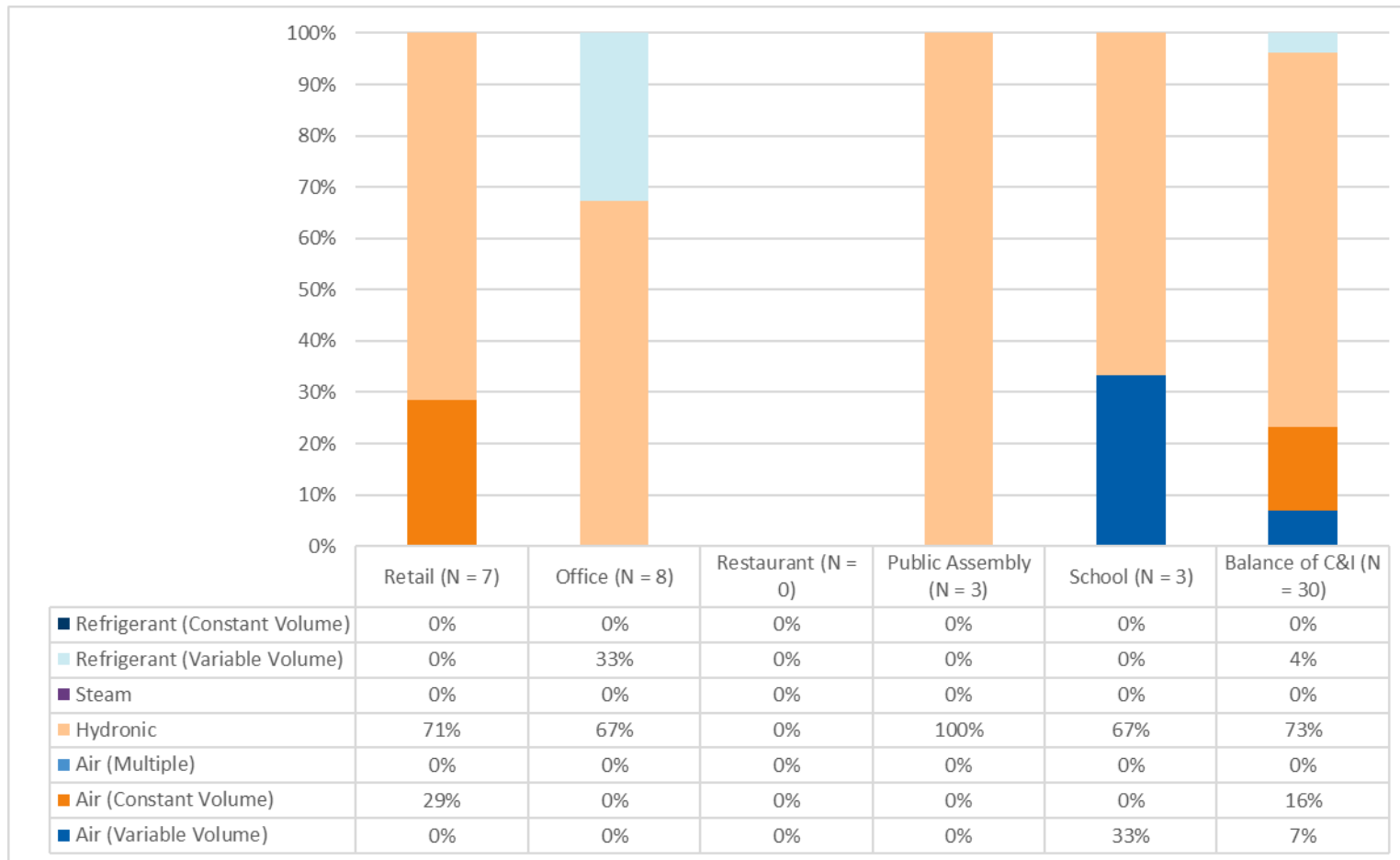




Figure 9. Saturation of Multi-Zone Hydronic and Steam Terminal Units by Facility Type (N=346)

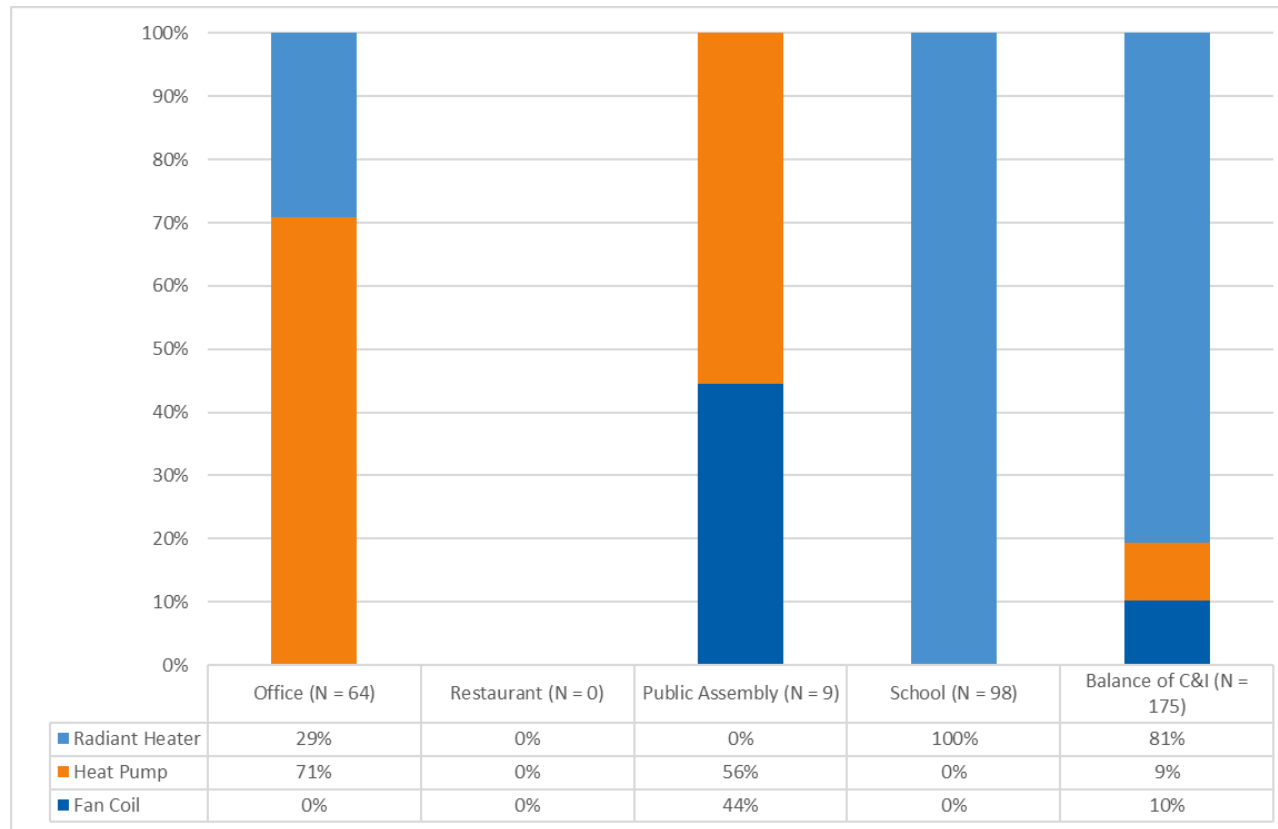


Figure 10. Distribution of Multi-Zone Equipment by Facility Type (N=617)

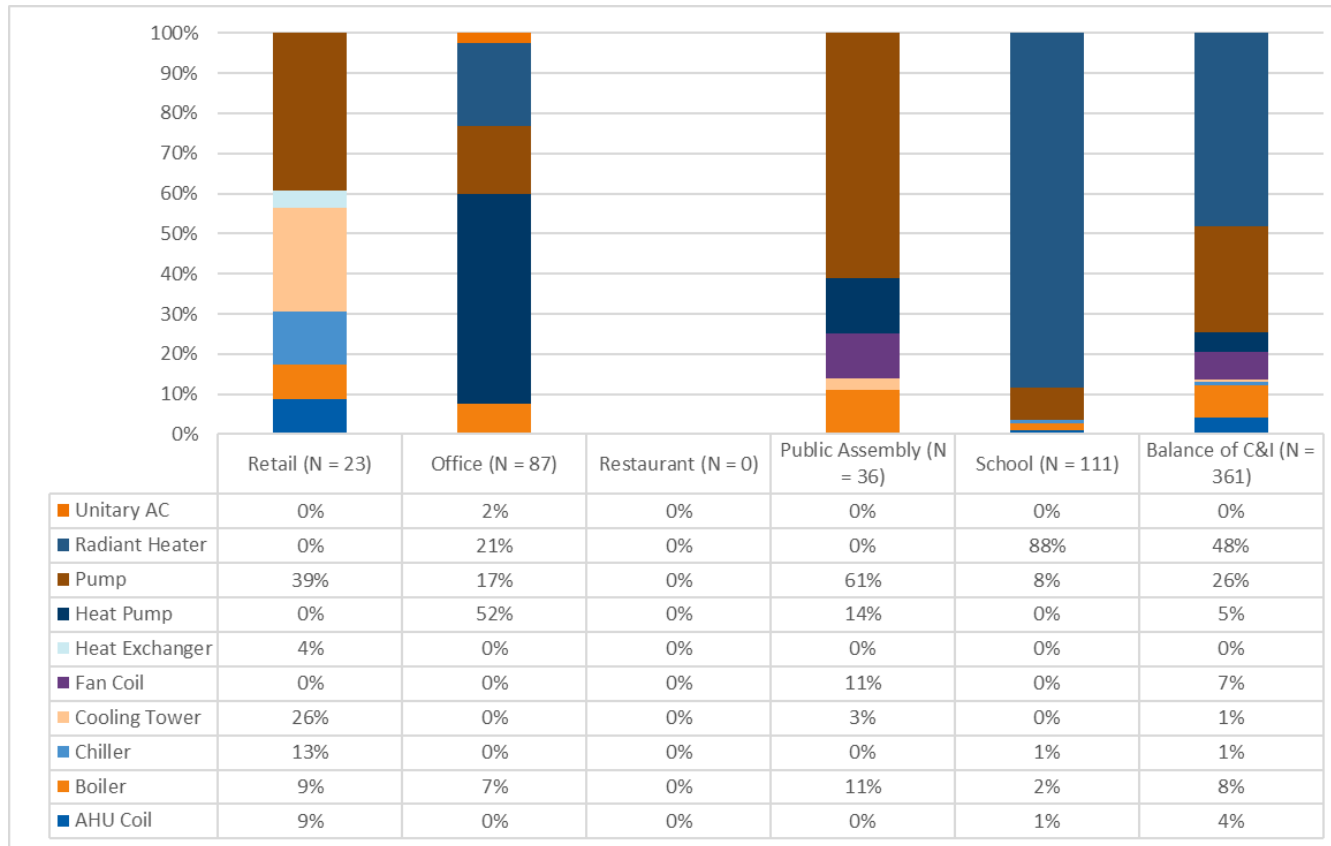




Figure 11. Saturation of HVAC System Control Types by Facility Type [2011 Fig.3-36]

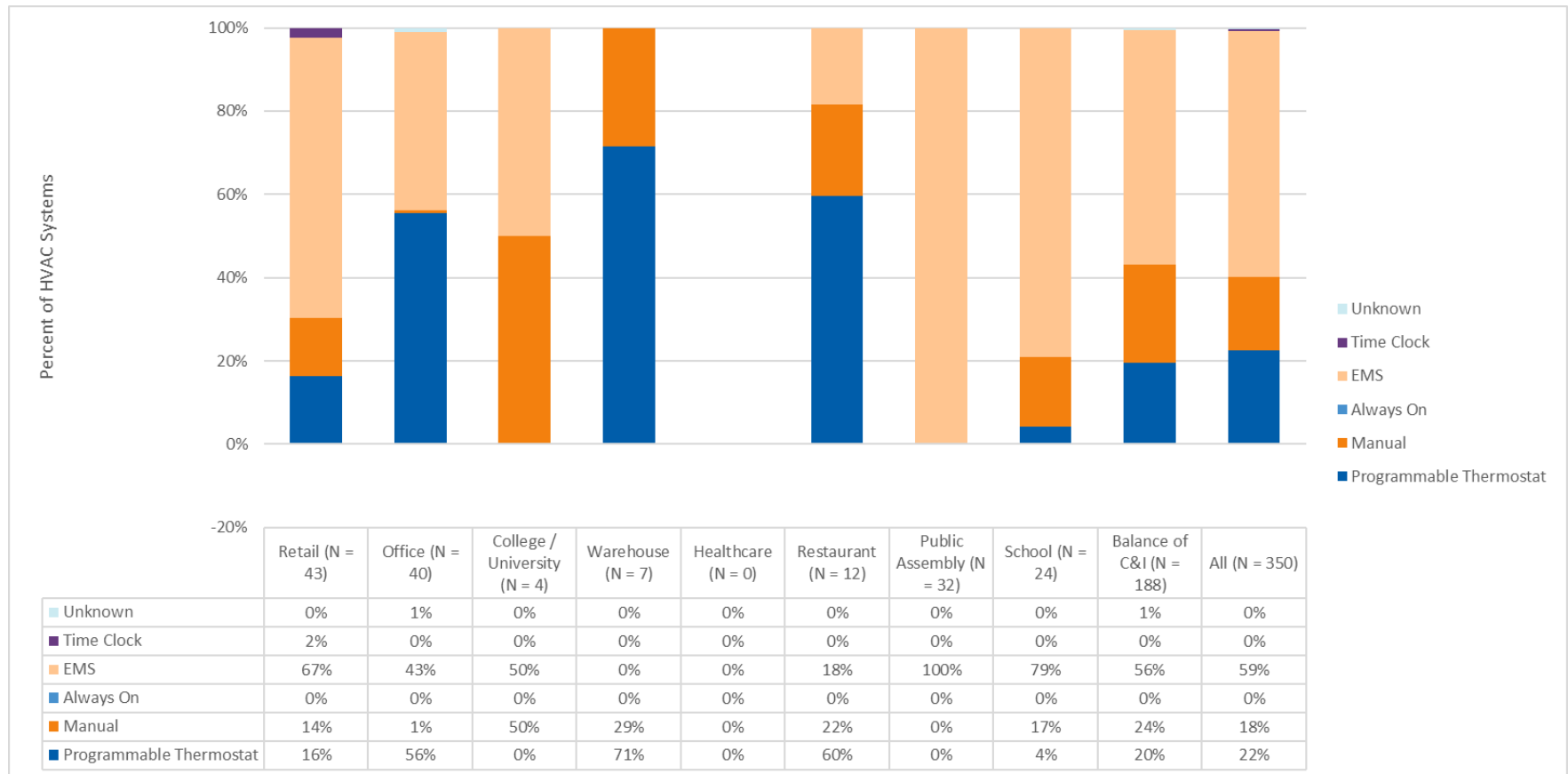


Figure 12. Saturation of Water Heating Equipment Types by Facility Type (N=104) [2011 Fig. 3-39]

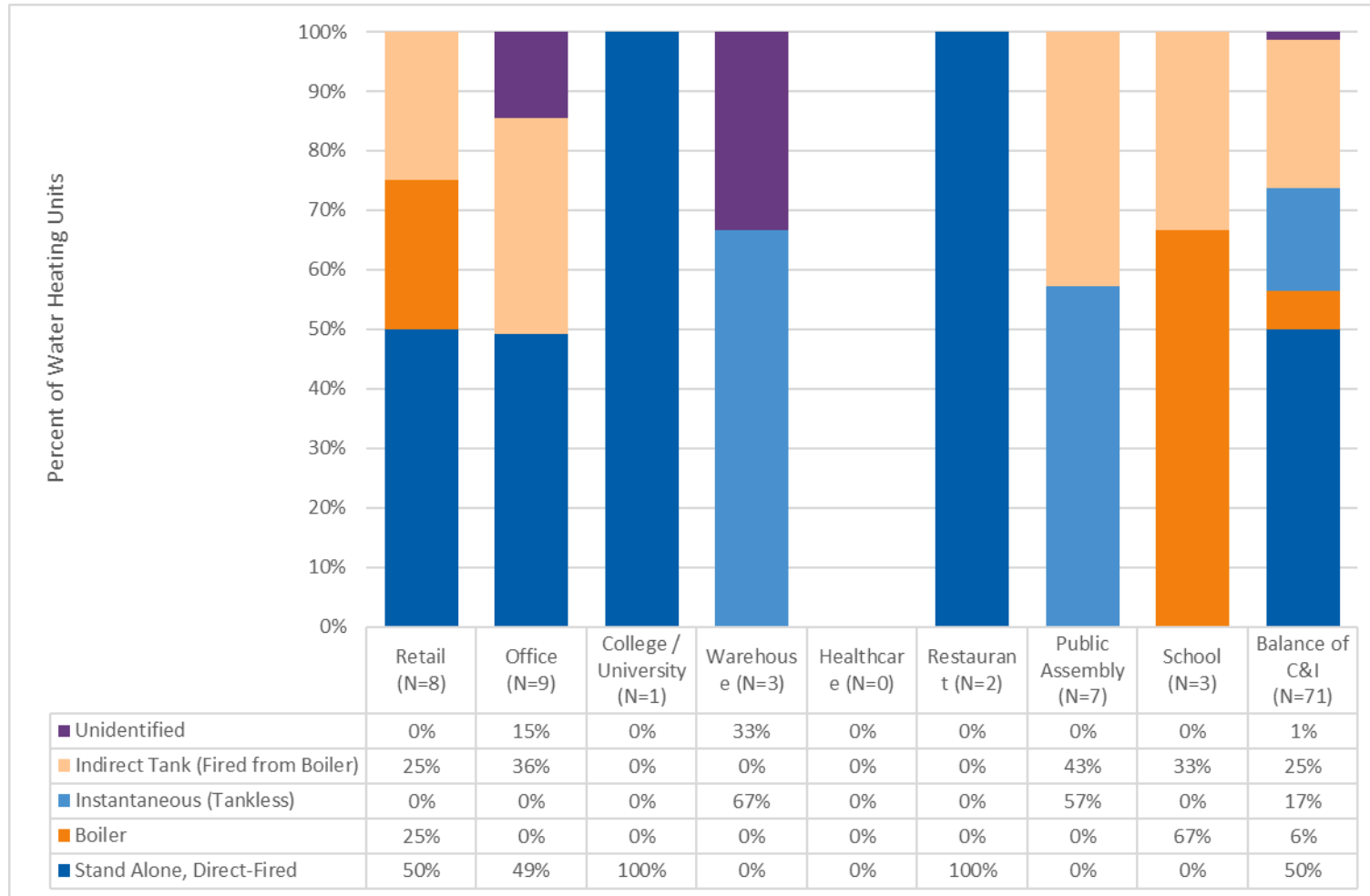




Figure 13. Water Heater Temperature Setting by Facility Type (N=74) [2011 Fig. 3-42 (N=148)]

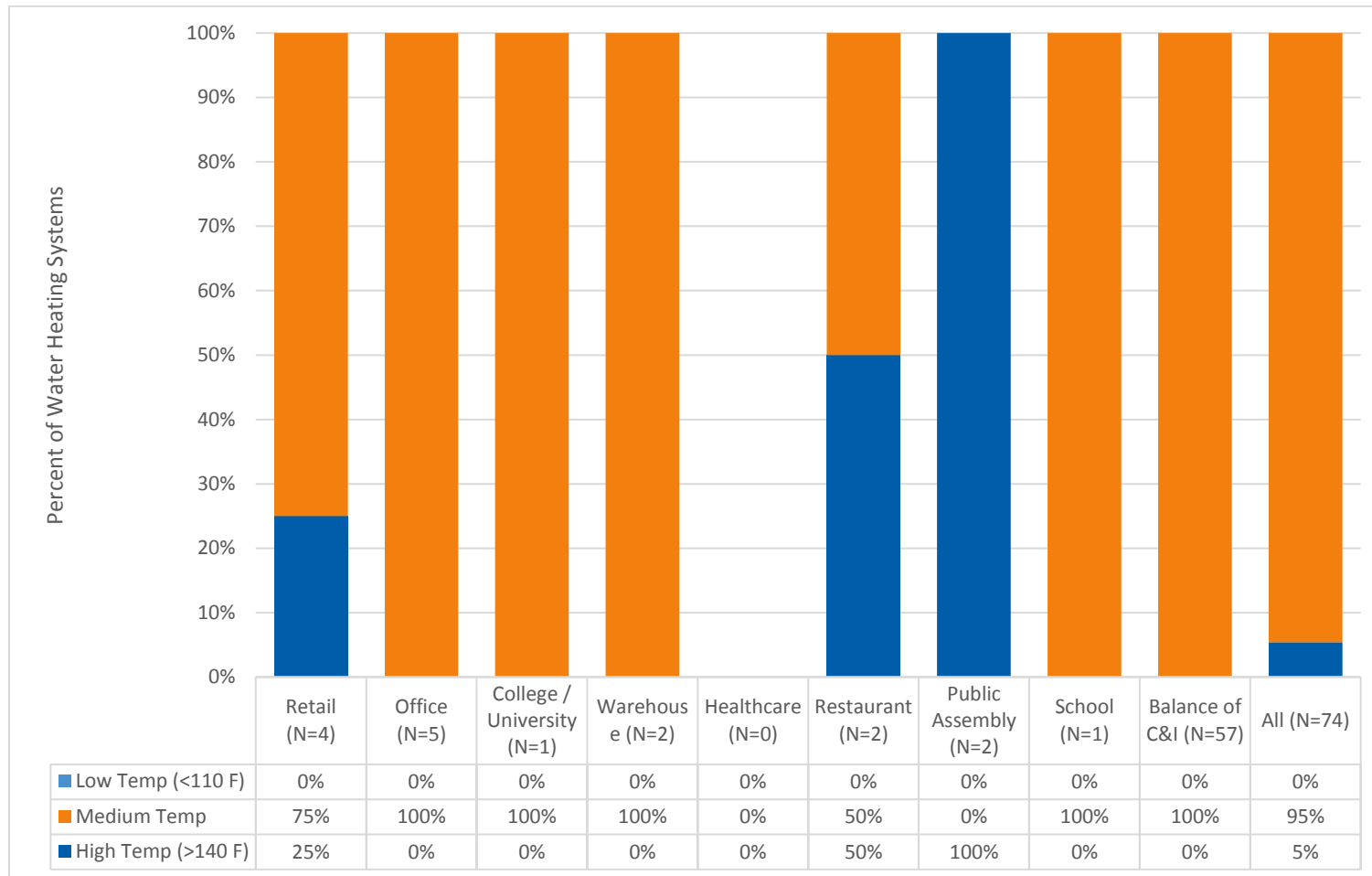


Figure 14. Saturation of Non-Commercial ENERGY STAR Refrigerators/Freezers by Facility Type [2011 Fig. 3-45]

